Assignee's ref. P920106
SUNDIAL'S ref. US1269F

SUNDIAL CONFIDENTIAL

ABSTRACT OF THE DISCLOSURE

A 3D polysilicon read only memory at least including: a silicon substrate, an isolated silicon dioxide (SiO_2) layer, a N-Type heavily doped (N+) polysilicon layer, a first oxide layer, a dielectric layer, a P-Type lightly doped (P-)

5   polysilicon layer, at least a neck structure, and a second oxide layer.   The isolated SiO_2 layer is deposited on the silicon substrate, and the N+ polysilicon layer is deposited on the isolated SiO_2 layer.   The N+ polysilicon layer is further defined a plurality of parallel, separate word lines (WL), and the first oxide layer is filled in the space between the word lines.   The dielectric layer

10   is deposited on the word lines and the first oxide layer.   The P-Type lightly doped (P-) polysilicon layer is deposited on the dielectric layer and is further defined a plurality of parallel, separate bit lines (BL).   The bit lines overlap the word lines, from a top view, to form a shape approximately as a cross.   There are at least a neck structure individually formed between the first polysilicon

15   layer and the second polysilicon layer by isotropy wet etching the dielectric layer, with using dilute hydrofluoric acid (HF) as the example.   The second oxide layer is filled in the space between the bit lines and is on the word lines and the first oxide layer.

*   *   *   *   *

20